BR

2025

M. A. Second Semester (CBCS) Examination

Geography

Course - CC 2.1

(Climatology)

Full Marks—40 Time—2 Hours

The figures in the right hand side margin indicate marks.

Answer ***any four*** questions selecting ***one*** from each unit.

Unit-I

(Fundamentals of Climatology)

1. Discuss the causes of latitudinal and seasonal variations of insolation. Elucidate the concept of stability and instability of the atmosphere highlighting the relation between normal lapse rate and an adiabatic lapse rate. 5+5=10

2. What are the driving forces of the horizontal movement of wind. Discuss them in brief. Explain the three-cell circulation model and its relevance to upper air circulation. 6+4=10

Unit-II

(Condensation, Precipitation and Monsoon)

3. What are the different theories related to precipitation? Discuss the Ice Crystal Theory related to the formation of raindrops. Critically explain the significance of mixing ratio with special reference to condensation. 2+4+4=10

[*P.T.O.*]

4. Explain the ramifications of Jet Streams in the origin of Indianmonsoon. Discuss them in brief. What are the suitable conditions for the origin of frequent cyclonic Storus over the Bay of Bengal? 5+5=10

Unit-III

(Weather Disturbances and Climate Change)

5. What are the roles of ENSO, IOD and MJO for the topsy turvy nature of Indian monsoon? Specify the role of Easterly Jet streem in the sudden onset of Indian monsoon 6+4=10

6. State the different theories of climate change related to the revolution of the Earth on its axis. What are the consequences of Anthropocene climate change in the changes of sea level? 6+4=10

Unit-IV

(Applied Climatology)

7. How are house types related to climate? What is the role of climate in the spatial variation of food habits. 5+5=10

8. Highlight the significance of short range weather forecasting in the agricultural modifications and adjustments. Elucidate the role of satellite remote sensing in weather forecasting with suitable examples. 6+4=10

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M. A. Second Semester (CBCS) Examination

Geography

Course - CC 2.2

(Soil and Bio-Geography)

Full Marks—40 Time—2 Hours

The figures in the right hand side margin indicate marks.

Answer ***any four*** questions selecting ***one*** from each unit.

Unit-I

(Fundamental Concepts of Soil)

1. Differentiate pedon from polyhedron. Analyse how different soil horizons develop in response to soil forming factors. 2+8=10

2. What is soil pH? State the significance of texture and structure of soils. 2+8=10

Unit-II

(Regional Perspective and Management of Soil)

3. What are Intra-zonal soils? Discuss the principle of soil classification as proposed by USDA. 2+8=10

4. Explain the causes and consequences of soil erosion. Discuss the importance of recent

conservation techniques adopted to address soil erosion in India. 5+5=10

Unit-III

(Fundamentals of Bio Geography and Ecosystem)

5. Define food web? What is bio-geochemical cycle? Discuss the nitrogen cycle as an important nutrient cycle. 2+2+6=10

6. Explain why energy flow in the ecosystem is unidirectional. What are ecosystem models? Critically discuss any two ecosystem models. 3+2+5=10

Unit-IV

(Biosphere and Biodiversity)

7. Define Biodiversity. What are the cause of biodiversity depletion? Discuss the methods of conserving biodiversity. 2+3+5=10

8. What is the significance of Biosphere Reserve? Discuss the factors of Plant Ecology. 4+6=10

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2025

M. A. Second Semester (CBCS) Examination

Geography

Course - CC 2.3

(Population and Settlement Geography)

Full Marks—40 Time—2 Hours

The figures in the right hand side margin indicate marks.

Answer ***any four*** questions selecting ***one*** from each unit.

Unit-I

(Population Dynamics)

1. What are the factors influencing Sex Ratio? Differentiate between stable and stationary population. 7+3=10

2. How does Literacy Rate vary across developed and developing countries? What is morbidity? Name the stages of Epidemiological Transition. 6+2+2=10

Unit-II

(Theories of Population Growth and Migration)

3. State the basic assumptions and elements of the Neo-Malthusian Theory. Distinguish between Optimum Population and Under population. 7+3=10

[*P.T.O.*]

4. Explain the theory of migration according to Ravenstein. What are the elements of the theory of migration by Zelinsky. 5+5=10

Unit-III

(Rural Settlement)

5. Discuss the nature and scope of Settlement Geography. Write a brief note on rural settlements of Gangetic Plains. 6+4=10

6. Classify rural settlements according to pattern. Explain the concept and significance of Nearest Neighbour Analysis. 5+5=10

Unit-IV

(Urban Settlement)

7. Discuss the characteristics of a Metropolis. Explain the factors influencing the growth of cities. 6+4=10

8. Write a brief note on the concept of Economic Base. Discuss critically Hoyt's model of urban morphology. 4+6=10

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2025

M. A. Second Semester (CBCS) Examination

Geography

Course - CC 2.4

(Practical)

(Climatology, Bio-geography and Soil-geography)

Full Marks—40 Time—3 Hours

The figures in the right hand side margin indicate marks.

All questions are compulsory.

1. Interpret the given weather map of India with special reference to—(Fig.1)

   (i) Relationship between pressure condition and cloud condition.

   (ii) Sky condition and other atmospheric phenomena.

   (iii) Identify the season. 5+4+1=10

2. Prepare a climatic chart on the basis of the data given below showing the relationship between temperature, relative humidity and precipitation. Interpret the chart. (Table-1) 8+2=10

Table-1

Station **Kolkata**	**Average** **Temperature**	**Rainfall**	**Relative** Humidity	**Pressure**
July-2007	(°C)	(mm)	(%)	(mb)
1	29.3	3.1	94	1002.2
2	30.6	2.4	77	1002.2
3	33.6	0.4	71	999.8
4	33.0	0.1	77	998.0
5	32.0	0.8	83	996.2
6	31.4	4.1	83	993.2
7	30.4	5.2	87	995.2
8	31.6	6.4	90	997.4

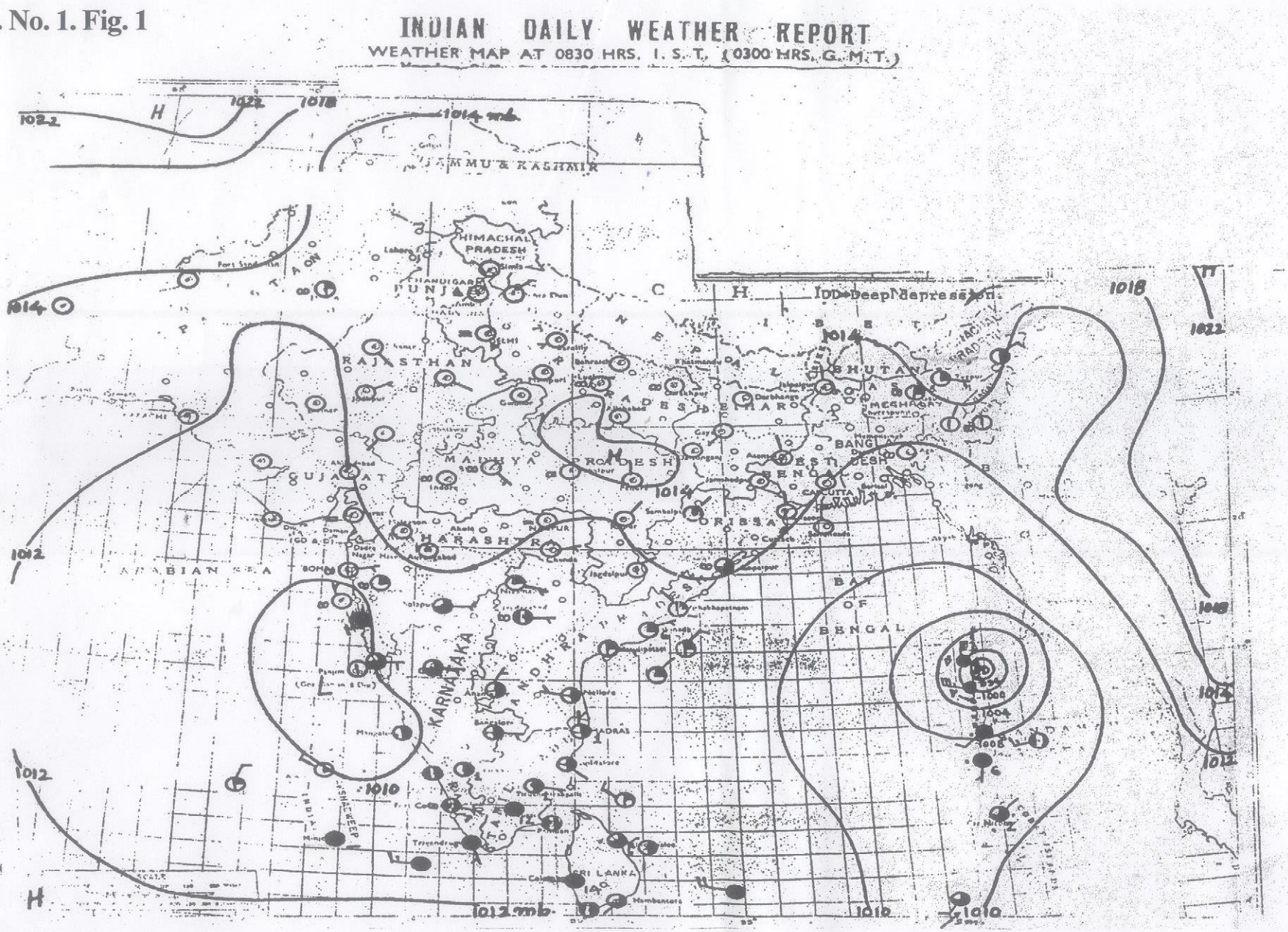
3. Prepare a Ternary Diagram to represent the following data and the soil tenture. The given Ternary Diagram may be used as a guideline. (Fig-2) 10

Table-2

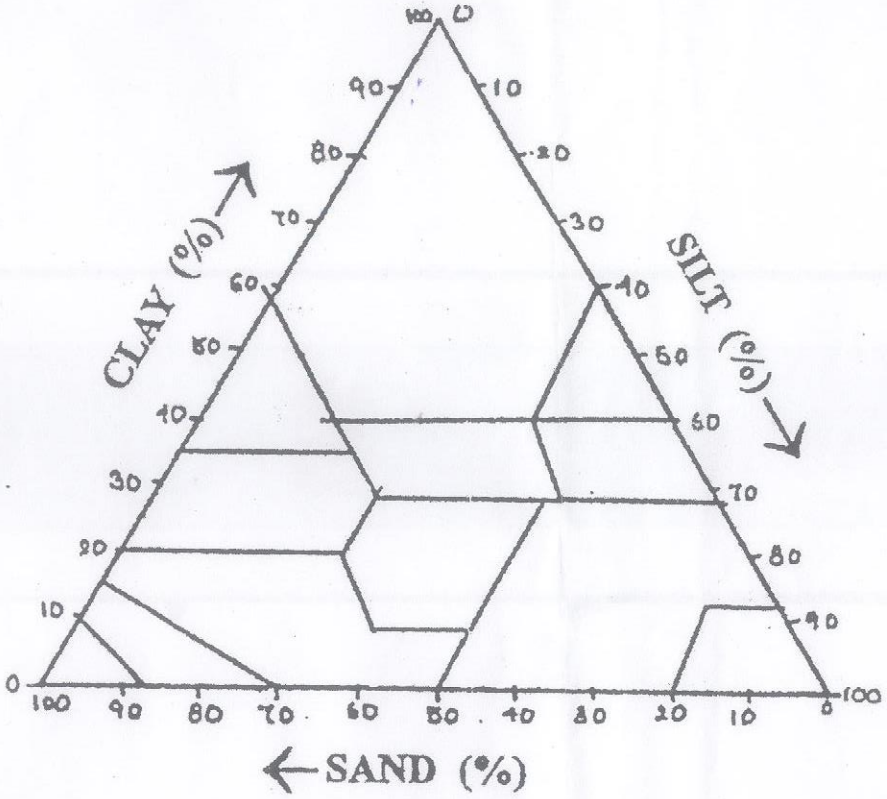
Sl.No.	Place	Sand (%)	Silt (%)	Clay (%)
1	A	30.6	22.5	46.9
2	B	17.01	30.5	52.49
3	C	30.1	24.3	45.6

4. Laboratory Note Book and Viva-Voce. 5+5=10

Q. No. 1. Fig. 1


INDIAN DAILY WEATHER REPORT
WEATHER MAP AT 0830 HRS. I. S. T. (0300 HRS. G. M. T.)
JAMMU & KASHMIR
HIMACHAL PRADESH
RAJASTHAN
GUJARAT
MADHYA PRADESH
MAHARASHTRA
ORISSA
BHUTAN
ARABIAN SEA
BAY OF BENGAL
KARNATAKA
TAMIL NADU
SRI LANKA
MADRAS
1014
1012
1010
1018
1022
1012 mb
1014 mb

Q. No. 3. Fig. 2



2025

M. A. Second Semester (CBCS) Examination

Geography

Course - CC 2.5

(Practical)

(Population and Settlement)

Full Marks—40 Time—3 Hours

The figures in the right hand side margin indicate marks.

1. Calculate decadal growth rate of population on the basis of following data :

Year	Population Size
1951	193260
1961	282734
1971	381247
1981	67524
1991	96102
2001	105441
2011	107342

Represent decadal growth rate of population by a suitable diagram and interpret. 5+3+2=10

2. On the basis of given topographical sheet in which a 10 cm × 10 cm area is marked, calculate the Nearest Neighbour Index value. Interpret the result. 8+2=10

3. Calculate the estimated population size of the following urban centres by using Rank Size Rule postulated by G.K. Zipf.

SL. No.	Urban Centre	Population Size
1	A	20,733,532
2	B	18,922,113
3	C	14,507,342
4	D	12,104,378
5	E	8,333,612
6	F	7,508,919
7	G	6,112,418
8	H	5,033,212

Draw a Rank Size Graph and interpret.

5+3+2=10

4. Laboratory Note Book and Viva-Voce. 5+5=10
